

## DAFTAR PUSTAKA

- Abdurachman, E. K., Bourdier, J. L., & Voight, B., 2000. Nuées ardentes of 22 November 1994 at Merapi volcano, Java, Indonesia. *Journal of Volcanology and Geothermal Research*, 100(1–4), 345–361.
- Andaru, R., Rau, J. Y., Syahbana, D. K., Prayoga, A. S., & Purnamasari, H. D., 2021, The use of UAV remote sensing for observing lava dome emplacement and areas of potential lahar hazards: An example from the 2017–2019 eruption crisis at Mount Agung in Bali, *Journal of Volcanology and Geothermal Research*, 415.
- Ashari, A., & Purwantara, S., 2022. *Nursa'ban, Muhammad, ed. Bentang lahan Vulkanik Indonesia: Aspek Fisikal dan Kultural*, UNY Press, Yogyakarta.
- Austin, R., 2010, *Unmanned Aircraft Systems: Uavs Design, Development and Deployment (First)*, John Wiley & Sons.
- BNPB, 2018, *Laporan Tahunan Penanggulangan Bencana Gunung Merapi*, Badan Nasional Penanggulangan Bencana.
- BPS, 2021, *Kecamatan Srubung dalam Angka 2021*, BPS Kabupaten Magelang
- Burrough, P. A., & McDonnell, R. A., 1998, *Principles of geographical information systems*, Oxford University Press, New York.
- Budiharto, W., Irwansyah, E., Suroso, J. S., & Chowanda, A., 2021, Mapping and 3D modelling using quadrotor drone and GIS software, *Journal of Big Data*, 8 (1).
- Calantropio, A., Chiabrandio, F., Sammartano, G., Spano, A., & Teppati Losè, L., 2018. UAV Strategies Validation and Remote Sensing Data for Damage Assesment in Post-Disaster Scenarios, *ISPRS - International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLII-3/W4.
- Camus, G., Gourgaud, A., Mossand-Berthommier, P. C., & Vincent, P. M., 2000, Merapi (Central Java, Indonesia): An outline of the structural and magmatological evolution, with a special emphasis to the major pyroclastic events, *Journal of Volcanology and Geothermal Research*, 100(1–4), 139–163.
- Coppola, D. P., 2015, *Introduction to International Disaster Management, Third Edition [3 ed.]*, Butterworth-Heinemann.
- Costa, J. E., & Schuster, R. L., 1988, The Use of LAHARZ in Volcanic Hazard Assessment, *Natural Hazards Journal*.

- Cromley, E. K., & McLafferty, S. L., 2011, *GIS and Public Health [2 ed.]*, Guilford Press.
- Davidson, J., & De Silva, S., 2000, *Volcanic Processes and Landforms*, Springer, New York.
- de' Michieli Vitturi, M., Costa, A., di Vito, M. A., Sandri, L., & Doronzo, D. M., 2024, Lahar events in the last 2000 years from Vesuvius eruptions – Part 2: Formulation and validation of a computational model based on a shallow layer approach, *Solid Earth*, 15(4), 437–458.
- Fisher, R. V., & Schmincke, H.-U., 1984, *Pyroclastic Rocks*, Springer, Verlag.
- Forsyth, D. A., & Ponce, J., 2011, *Computer Vision: A Modern Approach*. Prentice Hall.
- Francis, P., & Oppenheimer, C., 2003, *Volcanoes*, 2nd e.d., Oxford University Press Inc., New York.
- Gertisser, R., Charbonnier, S., Keller, J., & Quidelleur, X., 2012, The geological evolution of Merapi volcano, Central Java, Indonesia, *Bulletin of Volcanology*, 74.
- Gertisser, R., & Keller, J., 2003, Trace Element and Sr, Nd, Pb and O Isotope Variations in Medium-K and High-K Volcanic Rocks from Merapi Volcano, Central Java, Indonesia: Evidence for the Involvement of Subducted Sediments in Sunda Arc Magma Genesis, *Journal of Petrology - J PETROL*, 44, 457–489.
- Goodchild, M., 2007, Citizens as Sensors: The World of Volunteered Geography, *GeoJournal*, 69, 211–221.
- Gomez, C., & Purdie, H., 2016, UAV- based Photogrammetry and Geocomputing for Hazards and Disaster Risk Monitoring – A Review, *Geoenvironmental Disasters*, 3(1), 23.
- Griswold, J. P., & Iverson, R. M., 2008, Mobility and hazards of directed pyroclastic currents, *Geological Society of America Bulletin*, 120(9-10), 1512-1527.
- Haddow, G., Bullock, J., & Coppola, D. P., 2017, *Introduction to Emergency Management [6th ed.]*, Butterworth-Heinemann.
- Hamilton, W., 1979, Tectonics of the Indonesian region, *U.S. Geological Survey Professional Paper*, 1078. 345 pp.
- Hartley, R., & Zisserman, A., 2004, *Multiple View Geometry in Computer Vision*, Cambridge University Press.

- Haryanto, B., 2016, Kerusakan Infrastruktur Akibat Lahar, *Jurnal Teknik Sipil*.
- Harwin, S., & Lucieer, A., 2012, Assessing the Accuracy of Georeferenced Point Clouds Produced via Multi-View Stereopsis from Unmanned Aerial Vehicle (UAV) Imagery, *Remote Sensing*, 4, 1573–1599.
- Hecht, E., 2017, *Optics 5th edition*, Pearson Education, Boston
- Huggel, C., Schneider, D., Miranda, P. J., Delgado Granados, H., & Kääh, A., 2008, Evaluation of ASTER and SRTM DEM data for lahar modeling: A case study on lahars from Popocatepetl Volcano, Mexico, *Journal of Volcanology and Geothermal Research*, 170(1–2), 99–110.
- Iverson, R. M., 1997, The physics of debris flows, *Reviews of Geophysics*, 35(3), 245–296.
- Iverson, R. M., Schilling, S. P., & Vallance, J. W., 1998, Objective delineation of lahar-inundation hazard zones, *GSA Bulletin*, 110(8), 972–984.
- James, M. R., Robson, S., d'Oleire-Oltmanns, S., & Niethammer, U., 2017), Optimising UAV topographic surveys processed with structure-from-motion: Ground control quality, quantity and bundle adjustment, *Geomorphology*, 280, 51–66.
- Jenson, S. K., & Domingue, J. O., 1988, Extracting topographic structure from digital elevation data for geographic information-system analysis, *Photogrammetric Engineering and Remote Sensing*, 54, 1593–1600.
- Johnson, A., & Williams, B., 2023, Geographical Overview of Indonesia, *International Journal of Environmental Geography*, 8(1), 45–60.
- Kurniawan, V. O., Mei, E. T. W., Hadmoko, D. S., 2019, Pemodelan Aliran Lahar Gunung Merapi untuk Perhitungan Risiko Kerugian pada Penggunaan Lahan Terdampak di Bantaran Sungai Boyong, Pakem, Sleman, D.I. Yogyakarta, *Jurnal Geografi Lingkungan Tropik*, 3(2).
- Lavigne, F., Thouret, J. C., Voight, B., Suwa, H., & Sumaryono, A., 2000, Lahars at Merapi volcano, Central Java: an overview, *Journal of Volcanology and Geothermal Research*, 100, 423–456.
- Lavigne, F., Thouret, J. C., Voight, B., Young, K., Lahusen, R., Marso, J., Suwa, H., Sumaryono, A., Sayudi, D. S., & Dejean, M., 2000, Instrumental lahar monitoring at Merapi Volcano, Central Java, Indonesia, *Journal of Volcanology and Geothermal Research*, 100(1–4), 457–478.
- Lee, S. K., Lee, C. W., & Lee, S., 2015, A comparison of the Landsat image and LAHARZ-simulated lahar inundation hazard zone by the 2010 Merapi eruption, *Bulletin of Volcanology*, 77(6).

- Lillesand, T. M., Kiefer, R. W., & Chipman, J. W., 2015, *Remote Sensing and Image Interpretation (7th ed.)*, Wiley.
- Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W., 2015, *Geographic information science & systems*. Wiley, New Jersey.
- Lowe, D. G., 2004, Distinctive Image Features from Scale-Invariant Keypoints, *International Journal of Computer Vision*, 60(2), 91–110.
- Machado, G., Lupiano, V., Avolio, M. v., Gullace, F., & di Gregorio, S., 2015, A cellular model for secondary lahars and simulation of cases in the Vascún Valley, Ecuador, *Journal of Computational Science*, 11, 289–299.
- Major, J. J., & Iverson, R. M., 1999, Debris-flow deposition: Effects of pore-fluid pressure and friction concentrated at flow margins, *Geological Society of America Bulletin*, 111(10), 1424-1434.
- Mardiatno, D., 2017, Risiko Bencana Lahar di Indonesia, *Jurnal Kebencanaan*.
- Mcglone, C., 2013, *Manual of photogrammetry*. 79(5).
- Nayar, S., 2022, First Principle of Computer Vision, <https://fpcv.cs.columbia.edu>, Diakses pada 26 Juni 2024.
- Newhall, C. G., Bronto, S., Alloway, B., Banks, N. G., Bahar, I., del Marmol, M. A., Hadisantono, R. D., Holcomb, R. T., McGeehin, J., Miksic, J. N., Rubin, M., Sayudi, S. D., Sukhyar, R., Andreastuti, S., Tilling, R. I., Torley, R., Trimble, D., & Wirakusumah, A. D., 2000, 10,000 Years of explosive eruptions of Merapi Volcano, Central Java: archaeological and modern implications, *Journal of Volcanology and Geothermal Research*, 100(1–4), 9–50.
- Nex, F., & Remondino, F., 2014, UAV for 3D mapping applications: A review, *Applied Geomatics*, 6.
- Niethammer, U., James, M. R., Rothmund, S., Travelletti, J., & Joswig, M., 2012, UAV-based remote sensing of the Super-Sauze landslide: Evaluation and results, *Engineering Geology*, 128, 2–11.
- O'Callaghan, J., & Mark, D. M., 1984, The extraction of drainage networks from digital elevation data. *Comput. Vis. Graph. Image Process.*, 28, 323-344.
- Parfitt, E. A., & Wilson, L., 2008, *Fundamentals of Physical Volcanology*, Blackwell Publishing, Malden.
- Pierson, T. C., & Costa, J. E., 1987, A Rheologic Classification of Subaerial Sediment-Water Flows, *Geological Society of America Reviews in Engineering Geology*, 7, 1-12.

- Pratomo, W., 2020, Pemodelan Lahar Menggunakan LAHARZ di Gunung Merapi, *Jurnal Geoinformatika*.
- Procter, J. N., Cronin, S. J., Fuller, I. C., Sheridan, M., Neall, V. E., & Keys, H., 2010, Lahar hazard assessment using Titan2D for an alluvial fan with rapidly changing geomorphology: Whangaehu River, Mt. Ruapehu, *Geomorphology*, 116(1–2), 162–174.
- Puspitasari, N., 2018, Analisis Risiko Bencana Lahar, *Jurnal Mitigasi Bencana*.
- Rahardjo, W., Sukandarumidi, Rosidi, H. M. D., 2012, *Peta Geologi Lebar Yogyakarta, Jawa*. Pusat Survei Geologi.
- Rodolfo, K. S., 1989 Origin and early evolution of lahar channel at Mabinit, Mayon Volcano, Philippines *GSA Bulletin*, 101(3), 414–426.
- Ross, J., 2000, *Pinhole Photography: Rediscovering a Historic Technique 3rd edition*, Focal Press, Boston.
- Schilling, S. P., 1998, LAHARZ: GIS programs for automated mapping of lahar-inundation hazard zones, *U.S. Geological Survey Open-File Report*, 98-638.
- Schilling, S. P., 2014, LAHARZ: Automated Modeling of Lahars and Their Consequences, *Journal of Volcanology and Geothermal Research*.
- Self, S., Widdowson, M., Thordarson, T., Jay, A.E., 2006, Volatile fluxes during flood basalt eruptions and potential effects on the global environment: a deccan perspective, *Earth Planet S. C. Lett.*, 248, 518-532.
- Sigurdsson, H., Houghton, B., McNutt, S. R., Rymer, H., & Stix, J., 2015, *The Encyclopedia of Volcanoes 2nd e.d.*, Elsevier Inc., United Kingdom
- Simkin, T., & Fiske, R. S., 1983, *Krakatau 1883: The Volcanic Eruption and Its Effects*, Smithsonian Institution Press.
- Smith, K., 2013, *Environmental Hazards: Assessing Risk and Reducing Disaster 6<sup>th</sup> Edition*, Routledge.
- Smith, R., & Fritz, J., 2015, Lahars and Their Impact on Communities, *Volcanic Hazards Journal*.
- Sparks, R. S. J., Wilson, L., & Hulme, G., 1978, Theoretical modeling of the generation, movement, and emplacement of pyroclastic flows by column collapse, *Journal of Geophysical Research: Solid Earth*, 83(B4), 1727–1739.
- Stöcker, C., Bennett, R., Nex, F., Gerke, M., & Zevenbergen, J., 2017, Review of the Current State of UAV Regulations, *Remote Sensing*, 9, 459.

- Surono, Jousset, P., Pallister, J., Boichu, M., 2012, The 2010 explosive eruption of Java's Merapi volcano - a '100-year' event, *Journal of Volcanology and Geothermal Research*, 241-242, 121-135.
- Szeliski, R., 2010, *Computer Vision: Algorithms and Applications*, Springer.
- Tarboton, D. G., 1997, A new method for the determination of flow directions and upslope areas in grid digital elevation models, *Water Resources Research*, 33(2), 309-319.
- Thouret, J.-C., Lavigne, F., Kelfoun, K., & Bronto, S., 2000, Toward a Revised Hazard Assessment at Merapi Volcano, Central Java, *Journal of Volcanology and Geothermal Research*, 100(1-4), 479-502.
- Torresan, C., Berton, A., Carotenuto, F., di Gennaro, S., Gioli, B., Matese, A., Miglietta, F., Vagnoli, C., Zaldei, A., & Wallace, L., 2016, Forestry applications of UAVs in Europe: A review, *Int. J. Remote Sens.*, 38, 1–21.
- Triggs, B., McLauchlan, P.F., Hartley, R.I., & Fitzgibbon, A.W., 1999, Bundle Adjustment - A Modern Synthesis, *Workshop on Vision Algorithms*.
- Turner, D., Lucieer A., & Wallace, 2014, Direct georeferencing of ultrahigh-resolution UAV imagery, *IEEE Transactions on Geoscience and Remote Sensing*, 52(5), pp. 2738-2745.
- Turner, D., Lucieer, A., & Watson, C., 2012, An automated technique for generating georectified mosaics from ultra-high resolution Unmanned Aerial Vehicle (UAV) imagery, based on Structure from Motion (SfM) point clouds, *Remote Sensing*, 4, 1392–1410.
- Vallance, J. W., 2000, *Lahars*. Sigurdsson, H., Houghton, B., McNutt, S., Rymer, H., & Stix, J., (Eds.), *Encyclopedia of Volcanoes* (pp. 601-616). Academic Press.
- Vallance, J. W., & Iverson, R. M., 2015, Lahars and Their Deposits, *The Encyclopedia of Volcanoes*, 649–664.
- Voight, B., Constantine, E. K., Siswawidjyo, S., & Torley, R., 2000, Historical eruptions of Merapi Volcano, Central Java, Indonesia, 1768–1998, *Journal of Volcanology and Geothermal Research*, 100(1–4), 69–138.
- Wechsler, S. P., 2007, Uncertainties associated with digital elevation models for hydrologic applications: a review, *Hydrology and Earth System Sciences*, 11(4), 1481-1500.
- Westoby, M., Brasington, J., Glasser, N., Hambrey, M., & Reynolds, J., 2012, 'Structure-from-Motion' photogrammetry: A low-cost, effective tool for geoscience applications. *Geomorphology*, 179, 300–314.



- Widiyanto, A., 2020, Aktivitas Vulkanik Gunung Merapi dan Dampaknya, *Jurnal Vulkanologi Indonesia*.
- Wilson, M., 1989, *Igneous Petrogenesis*, Springer, Dordrecht.
- Wolf, P. R., Dewitt, B. A., Wilkinson, B. E., & York Chicago San Francisco Athens London Madrid, N., 2014, *Elements of Photogrammetry with Applications in GIS (4th ed.)*.
- Yamazaki, F., & Liu, W., 2016, REMOTE SENSING TECHNOLOGIES FOR POST-EARTHQUAKE DAMAGE ASSESSMENT: A CASE STUDY ON THE 2016 KUMAMOTO EARTHQUAKE, *6th ASIA Conference on Earthquake Engineering (6ACEE)*, Philippines, 22-24 Sept 2016.
- Yuniawati, H., & Priyanto, S., 2019, Dampak Lahar Terhadap Pertanian di Lereng Merapi, *Jurnal Agronomi*.
- Zatarain, M., Mendikute, A., & Inziarte, I., 2012, Raw part characterisation and automated alignment by means of a photogrammetric approach, *CIRP Annals - Manufacturing Technology*, 61, 383–386.
- Zhang, R., Li, H., Duan, K., You, S., Liu, K., Wang, F., & Hu, Y., 2020, Automatic Detection of Earthquake-Damaged Buildings by Integrating UAV Oblique Photography and Infrared Thermal Imaging, *Remote Sensing*, 12(16).
- Zhang, Z., & Zhu, L., 2023, A Review on Unmanned Aerial Vehicle Remote Sensing: Platforms, Sensors, Data Processing Methods, and Applications, *Drones*, 7, 398.